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Elliptical LASEK may have edge for astigmatic patients

By Stefanie Petrou Binder MD

NICE — A new variation of LASEK called excimer laser sub-epithelial ablation which uses elliptical instruments produces excellent outcomes in astigmatism. Chris Lohmann MD, University Clinic, Regensburg, Germany, reported a trial in conjunction with the Rayne Institute, St Thomas' Hospital, London,

The researchers performed ELSA on 34 astigmatic patients. The cylindrical was between 1.0 D and 3.50 D, with a mean of 1.71 D and the spherical between - 0.75 D and - 8.75 D with a mean of - 4.26 D. Maximum follow up six months in all eyes.

Dr Lohmann's results showed the epithelial flap could be created without postoperative complications in all 34 eyes.

The researchers observed some dead superficial epithelial cells beneath the contact lens (bCL). They did not detect erosion of the epithelium using fluorescein on the third postoperative day.

Most eyes showed a slight epithelial oedema at day three prior to the removal of the contact lens. The epithelium did not show signs of instability during the postoperative period and patients did not report any signs of epithelial breakdown.

At six months, all treated eyes had a postoperative spherical refraction of -0.04 D with a mean of - 0.04 D. Of these, 92% were within +/- 0.50 D of target. The cylindrical postoperative refraction was 0.27 D, ranging between 0.0 D and 1.0 D as reported.

The ELSA instruments consist of an elliptical-shaped microtrehpine (11.0 mm) with a 70 micron calibrated blade and an elliptical shaped alcohol cone (11.0 mm x 8.5 mm).

The epithelial trephine has a blade on the corneal side that cuts 70 micrometres of epithelium and Bowman's layer. The blade is interrupted on one side of the hinge leaving a hinge of 2.0 mm.

The ELSA instruments create a circular epithelial flap that exceeds the 8.0 mm maximum cut achieved by current methods.

This approach to astigmatic correction using the excimer laser involves ablation from the cornea in a cylindrical fashion. The toric ablation patterns are generally 8.0 mm to 10.0 mm long in one of the cylindrical axes.

The surgeons performed the ELSA procedure using Camellin's LASEK technique under topical anaesthesia. After incising the corneal epithelium with the epithelial刀 (Geuder), they placed the alcohol cone on the corneal surface encircling the incision.

The cone was filled with 20% ethanol in distilled water and left for 30 seconds. The cornea was then dried and thoroughly washed with a balanced salt solution.

rinse out the remaining alcohol.

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